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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,044	11/20/2003	Michael E. Norkitis	D/A3185	2335
25453	7590	07/05/2005	EXAMINER	
PATENT DOCUMENTATION CENTER XEROX CORPORATION 100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR ROCHESTER, NY 14644			DICT, RACHEL S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,044

Applicant(s)

NORKITIS ET AL.

Examiner

Rachel Dicht

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-49 is/are allowed.
- 6) ☒ Claim(s) 1-4, 10, 11 and 13 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/02/04 and 4/7/05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Regimbal et al. (US Pat. No. 5,736,993) in view of Shirato et al. (US Pat. No. 4,334,234).

Regimbal et al. teaches a drop generator comprising a pressure chamber (12, Fig. 1); and inlet channel connected to the pressure chamber (22, Fig. 1); an outlet channel connected to the pressure chamber (28, Fig. 1), the outlet channel having an outlet channel axis; a drop emitting nozzle disposed at an end of the outlet channel (14, Fig. 1); and the outlet channel including a circular outlet channel section (refer to TABLE 1, Outlet Channel Cross Section) (refer to column3 lines 14-23).

Regimbal et al. fails to teach a non-circular outlet channel section.

However, Shirato et al. teaches a non-circular outlet channel section (LV, Fig. 4) (refer to column 6 lines 37-42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Regimbal et al. to include a non-circular outlet section as taught by Shirato et al. for the purpose lowering friction of the ink in the outlet section and thereby maintaining a more efficient ejection.

3. Claims 2, 4, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regimbal et al. (US Pat. No. 5,736,993) in view of Shirato et al. (US Pat. No. 4,334,234) in view of Regimbal (US Pat. No. 5,736,993).

Claim 2:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 2 in that it fails to teach a drop generator further including a piezo electric element.

However, Regimbal et al. further teaches a drop generator further including a piezo electric element (32, Fig. 1) (refer to column 3 lines 23-26).

Claim 4:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 4 in that it fails to teach a drop generator wherein the circular section is connected to the ink pressure chamber.

However, Regimbal et al. further teaches a drop generator wherein the circular section is connected to the ink pressure chamber (28, Fig. 1; outlet channel 28 is connected to circular offset channel port 24 which is connected to ink pressure chamber 22, Fig. 1).

Claim 13:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 13 in that it fails to teach a drop generator wherein the pressure chamber is operated at a frequency of about 23 KHz to about 30 KHz.

However, Regimbal et al. further teaches a drop generator wherein the pressure chamber is operated at a frequency of about 23 KHz to about 30 KHz (refer to column 6 lines 56-61).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Regimbal et al. as

modified by Shirato et al. to include a piezo element as further taught by Regimbal et al. for the purpose of ejecting ink from an orifice.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regimbal et al. (US Pat. No. 5,736,993) in view of Shirato et al. (US Pat. No. 4,334,234) in view of Chung et al. (European Pat. No. EP 1 321 294 A2).

In regard to:

Claim 5:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 5 in that it fails to teach a drop generator wherein the circular section is connected to the ink pressure chamber and wherein the non-circular section is connected to the circular section.

However, Chung et al. teaches a drop generator wherein the circular section (230, Fig. 5) is connected to the ink pressure chamber (120, Fig. 5) and wherein the non-circular section (311, Fig. 5) is connected to the circular section (230, Fig. 5) (refer to column 10 lines 26-27 and column 11 lines 5-10).

Claim 6:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 6 in that it fails to teach a drop generator wherein the circular section includes a first circular sub-section and a second circular sub-section.

However, Chung et al. teaches a drop generator wherein the circular section includes a first circular sub-section (230, Fig. 5) and a second circular sub-section (312, Fig. 5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Regimbal et al. as modified by Shirato et al. to include a non-circular section connected to a circular section as taught by Chung et al. for the purpose of preventing back flow of ink.

5. Claims 3, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regimbal et al. (US Pat. No. 5,736,993) in view of Shirato et al. (US Pat. No. 4,334,234) in view of Shirato et al. (US Pat. No. 4,334,234).

In regard to:

Claim 3:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 3 in that it fails to teach a drop generator wherein the inlet channel receives melted solid ink.

However, Shirato et al. further teaches a drop generator wherein the inlet channel receives melted solid ink (refer to column 6 lines 37-47).

Claim 10:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 10 in that it fails to teach a drop generator wherein the nozzle is disposed at and end of the non-circular section.

However, Shirato et al. teaches a drop generator wherein the nozzle (OR, Fig. 4) is disposed at and end of the non-circular section (LV, Fig. 4) (refer to column 6 lines 443-47).

Claim 11:

The device of Regimbal et al. as modified by Shirato et al. DIFFERS from claim 11 in that it fails to teach a drop generator wherein the ink pressure chamber has a cross-section that is generally parallelogram shaped.

However, Shirato et al. teaches a drop generator wherein the ink pressure chamber (IR, Fig. 4) has a cross-section that is generally parallelogram shaped (refer to Fig. 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Regimbal et al. as modified by Shirato et al. to include a drop generator where the inlet

receives melted solid ink as further taught by Shirato et al. for the purpose of melted solid ink being commonly known in the art and being easily interchanged with other forms of ink as a functionally equivalent substitution therefore.

Allowable Subject Matter

6. Claims 14-49 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the allowance of claims 14-49 is the inclusion of the limitation of "the outlet channel including a first circular outlet channel section connected to the pressure chamber, a first non-circular outlet channel section connected to the first circular outlet channel section, as second circular outlet channel section connected to the first non-circular outlet channel section, a second circular outlet channel section connected to the first non-circular outlet channel section, and a second non-circular outlet channel section connected to the second circular outlet section". It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

8. Claims 7-9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD


June 23, 2005


Stephen D. Meier
Primary Examiner